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How Agriculture Adjusts to Economic Growth

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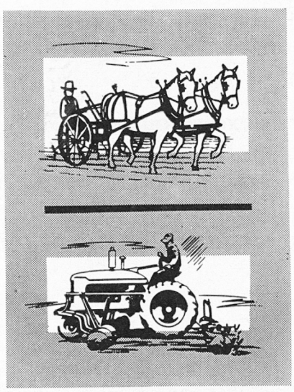
OUR

Changing Agriculture

How Agriculture Adjusts to Economic Growth

Agriculture and farm families have already made sizable adjustments to increased demands and to new tools and methods. It's remarkable, in fact, that the problems of imbalance today are no worse than they are.

BEFORE LOOKING at adjustments still needed in agriculture, let's take a quick look at the dramatic changes that have taken place in the past 30 years to help bring this matter into sharper focus.



As a benchmark for considering the kind and rate of change that has gone with economic growth and technological progress, let's use 1929. It was the last good year before the depression of the 30's. And mechanization in agriculture was already under way.

Demand for Farm Products Has Increased . . .

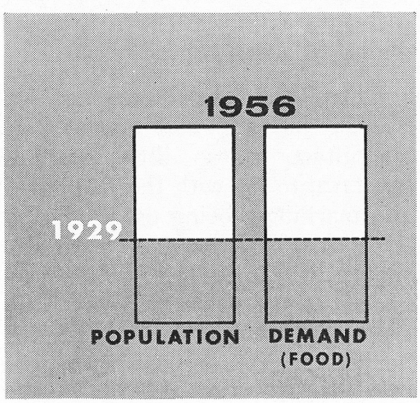
The two forces that have the greatest influence on the demand for farm products are the levels of population and of per capita income, though export demand also is important.

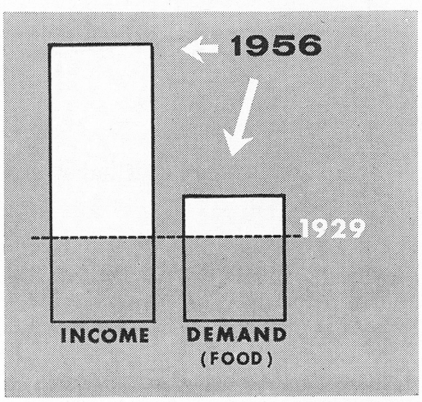
The growth in demand for food that goes with a population increase is close to a 1:1 ratio. That is, a 1-percent increase in population results in about a 1- percent increase in the demand for food. Since 1929 the United States population has increased from about 121 million to about 168 million in 1956, approximately 38 percent.

In this same period, disposable income per person has risen about 58 percent in terms of 1956 dollars. Demand for food, however, doesn't rise in a 1:1 ratio as incomes rise. As their incomes increase, people eat somewhat better but are inclined to spend the greater part of their extra income on nonfood items. And the bulk of the increased spending for food goes for more services—packaging, pre-mixing, pre-cooking, restaurant meals, etc.—rather than for more food itself.

The increase in demand for *farm* food products associated with a rise of 10 percent in per capita money income after taxes is estimated at about 2 percent. The actual rise in the demand for food at the farm level since 1929 has been about 12 percent as a result of eating higher valued foods associated with a 58-percent rise in per capita incomes. (This doesn't mean that more calories have been added; the increase mostly has been in more "animal" foods plus fruits and vegetables and less cereals and potatoes.)

Adding these two factors together—increased population and rising per capita incomes—has meant a total increase in the domestic demand for farm food products of about 50 percent from 1929 to 1956. At the same time, export demand has been erratic—low dur-





ing the depression, high in the war and early postwar years, and heavily subsidized at present.

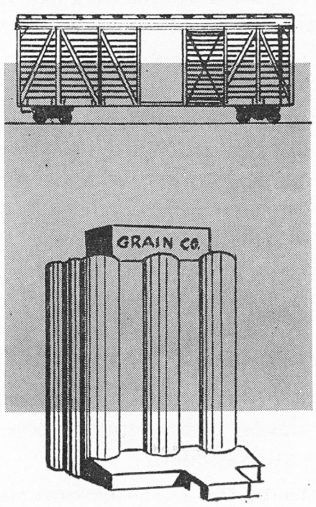
. . . But the Supply Has Grown Faster

During the 1929-56 period, marketings of farm food products rose about 55 percent—more than adequate to meet the demand for them. So farm product prices have fallen relative to nonfarm products.

Much of the rise in output can be attributed to new developments and methods adopted during this period. One source of the increase has been the improved farming that results from greater mechanization. Of farm tractors and four major harvesting machines (combines, cornpickers, pick-up balers and field harvesters), the number in use increased from about 840,000 in 1929 to nearly 7.6 million in 1956.

Crop production per harvested acre rose about 30 percent in the 27 years—partly because of mechanization and partly because of other factors such as improved varieties and an increase in fertilizer use of some 400 percent. Livestock production per breeding unit rose by about 25 percent during the same period. And the increased knowledge and ability of the farm people themselves is no small factor in the rising output.

Cropland as such has been mostly a neutral factor. In the East and South, cropland use has declined some 15 percent or more in the 27 years. But this has been offset by an expansion of some 20 percent in land use in the West. In total, cropland harvested has had a generally steady trend. Land productivity, however, has been improved by drainage, irrigation and erosion-control measures. Though use of cropland has been steady, major changes have occurred in other resources used.



The big change has been in the number of farm people and farm workers. Employment in agriculture declined from 12.8 million in 1929 to 8 million in 1956. This has meant a much larger migration out of agriculture than these numbers indicate. Many more children were born to farm families than were needed even to maintain the farm working force at the 1929 level. The number that have migrated from farms since 1920 (farm population was then 32 million) is roughly two-thirds of the number who now live on farms (22 million). Without this migration, the individual family slice of the total farm income would be small indeed.

Big Changes Have Already Been Made . . .

American farm operators and their families have already made sizable adjustments to increased demand and to new tools and methods. Considering the number and dimensions of the changes that have already taken place, it isn't surprising that not all of the adjustment problems have been solved. It's remarkable that adjustments have proceeded as rapidly as they have and that the imbalance isn't worse than it is.

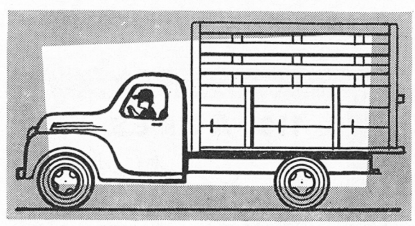
. . . But More Change Is Coming.

Considerable adjustment has taken place in Iowa also. But the evidence indicates that still further adjustment is needed in Iowa as well as elsewhere.

When much of the state's farming was still being done with horses in 1930, the average cropland harvested per commercial farm was about 113 acres. In 1954 the average was 126 acres, an increase of but 13 acres. This is a small addition considering the transition from sulky and gang plows and horse-drawn cultivators to swift-moving tractor outfits, from picking corn by hand to two-row pickers, from threshing oats to combining.

Farm output per man has risen sharply. The increase has come mostly through increased yields per acre, increased numbers and output from livestock (partly due to shifting feed use from horses to other livestock) and a decline in manpower on Iowa farms. The number of cattle and calves on Iowa farms has increased 63 percent since 1929, for example, and hogs marketed are up 37 percent since then. But horses and mules, well over a million head in 1929, have practically disappeared.

This and other evidence shows that the adjustment in Iowa has been to use the labor released by mechanization to reduce the labor force somewhat, to handle more livestock and to improve crop production methods. But the Iowa situation is still one where many farms have too few crop acres to make good use of labor and machinery. In 1954 about 65,000 commercial Iowa farms (35 percent) had under 100 acres of crops to harvest—a situation that makes it difficult to use modern crop machinery efficiently.



Parallel adjustments have gone on in marketing institutions and methods, but big changes are still in the offing. Where livestock for market formerly went almost entirely by rail to central markets, they now travel swiftly by truck to widespread market outlets. On the other hand, about 60 percent of the creameries in Iowa in 1955 produced 400,000 pounds or less of butter per year—not much different in scale of operation from the days when cream came to the plant behind the farmer's team.